

Appendix A

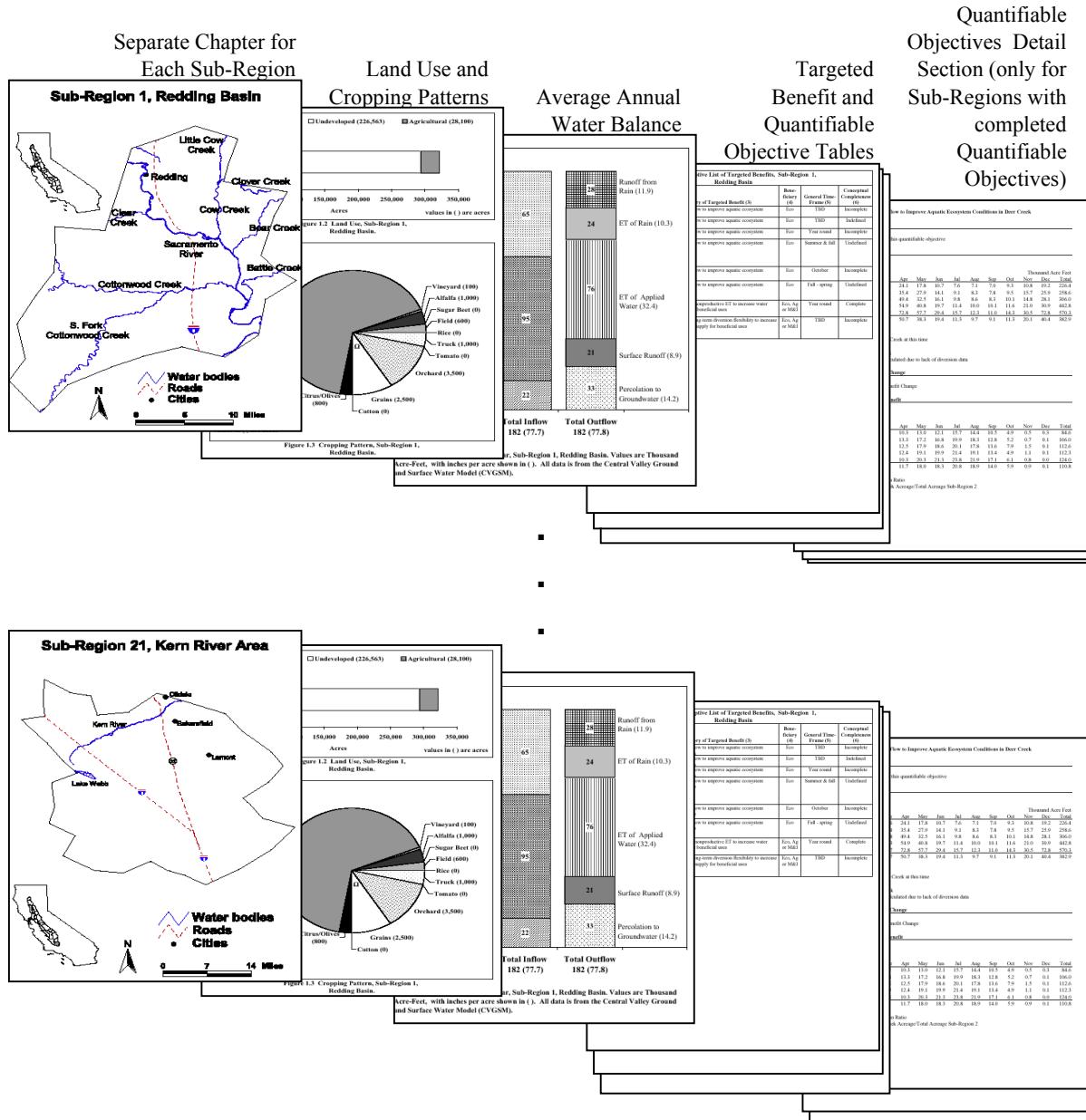
Complete List of Quantifiable Objectives by Sub-Region

Appendix A contains a list of the completed and potential Quantifiable Objectives (QO). To-date, 196 potential QO have been identified. Of these, approximately 50 have been completed. WUE proposals that incorporate completed QOs will be given extra weight in the selection process.

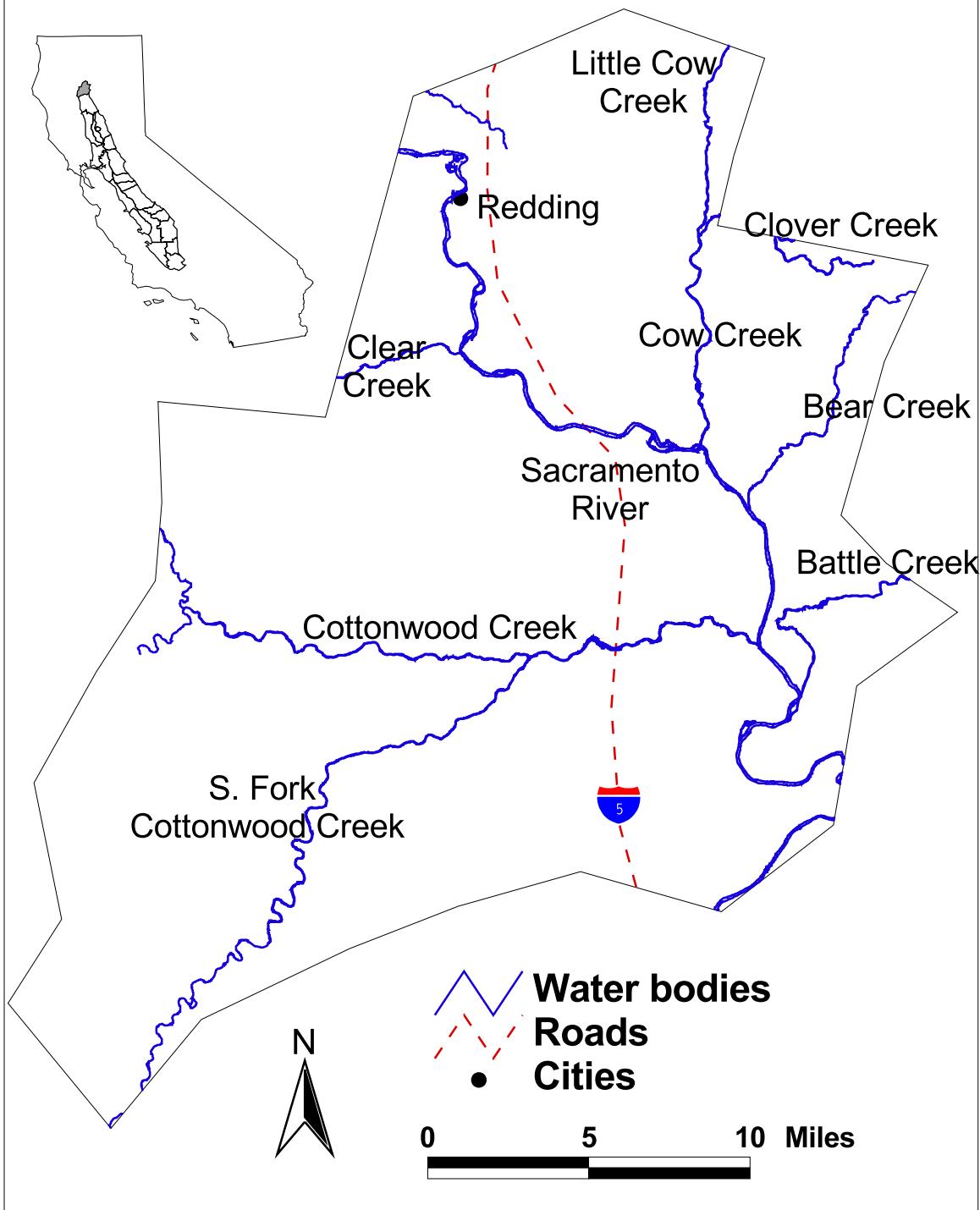
Readily available data does not exist to allow completion of the remaining QO. However, approximately 45 of the uncompleted QO have been identified as high priority, and proposals that are linked to these priority outcomes (or Targeted Benefits) will also receive extra weight in the selections (although not as much weight as those that incorporate completed QO).

Appendix A is organized into 21 chapters that correspond to the 21 Sub-Regions defined in the QO analysis. Each chapter contains background information and details as illustrated in Figure A.I.

Figure A.I. Organization of Appendix A



Sub-Region 1, Redding Basin



**Figure A.1.2 Land Use, Sub-Region 1,
Redding Basin.**

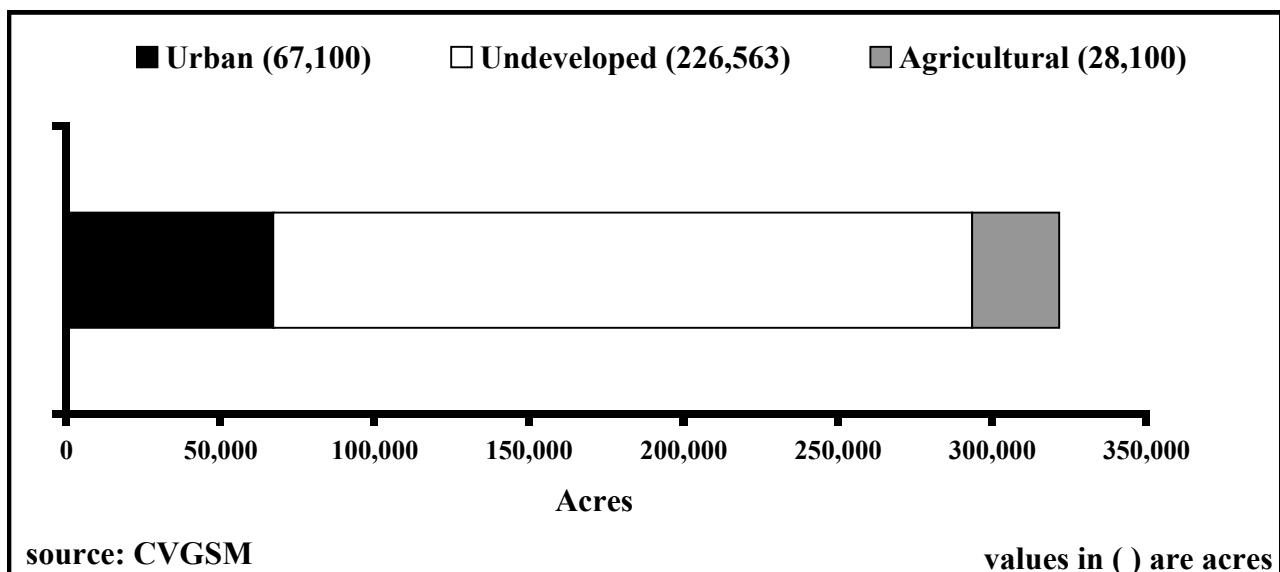
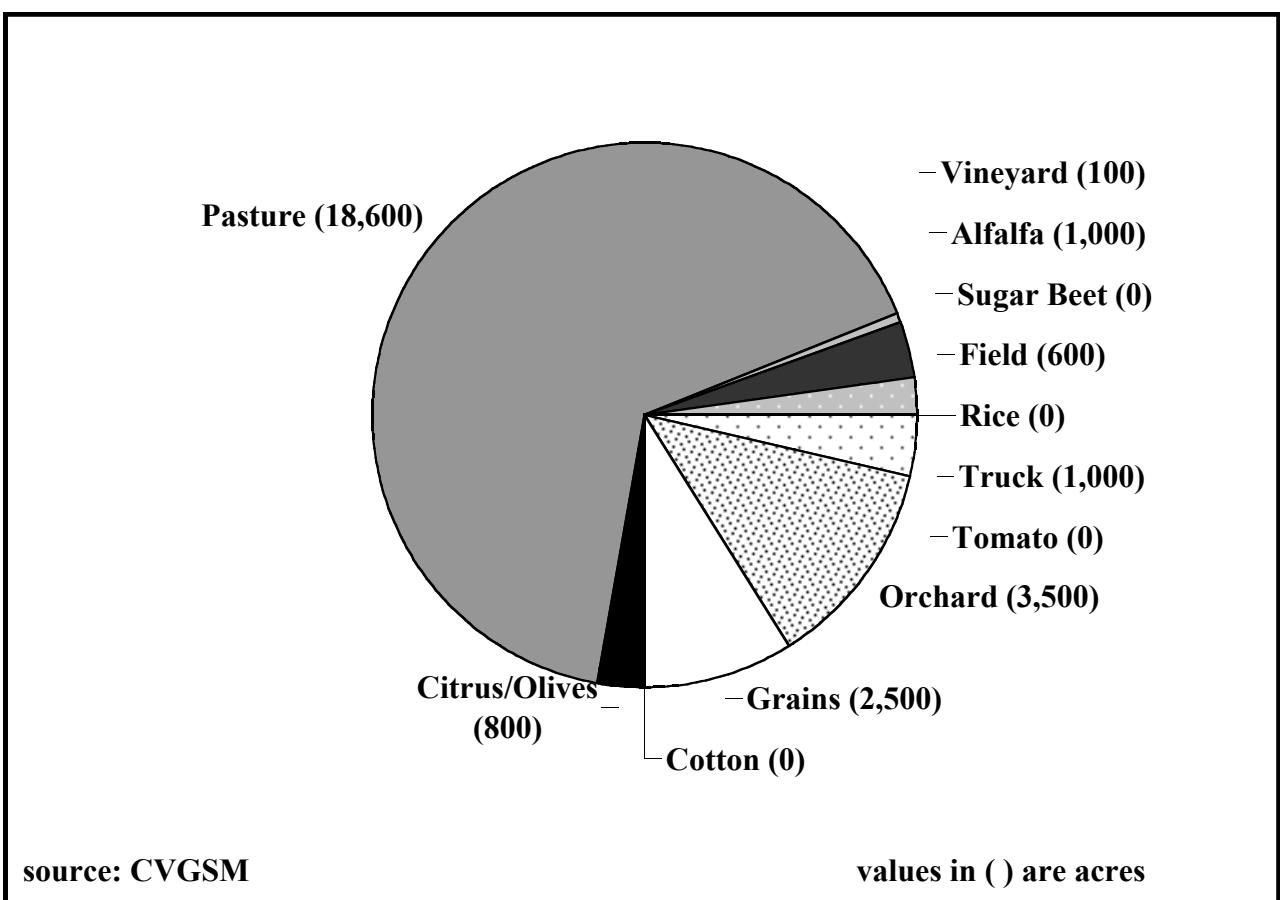
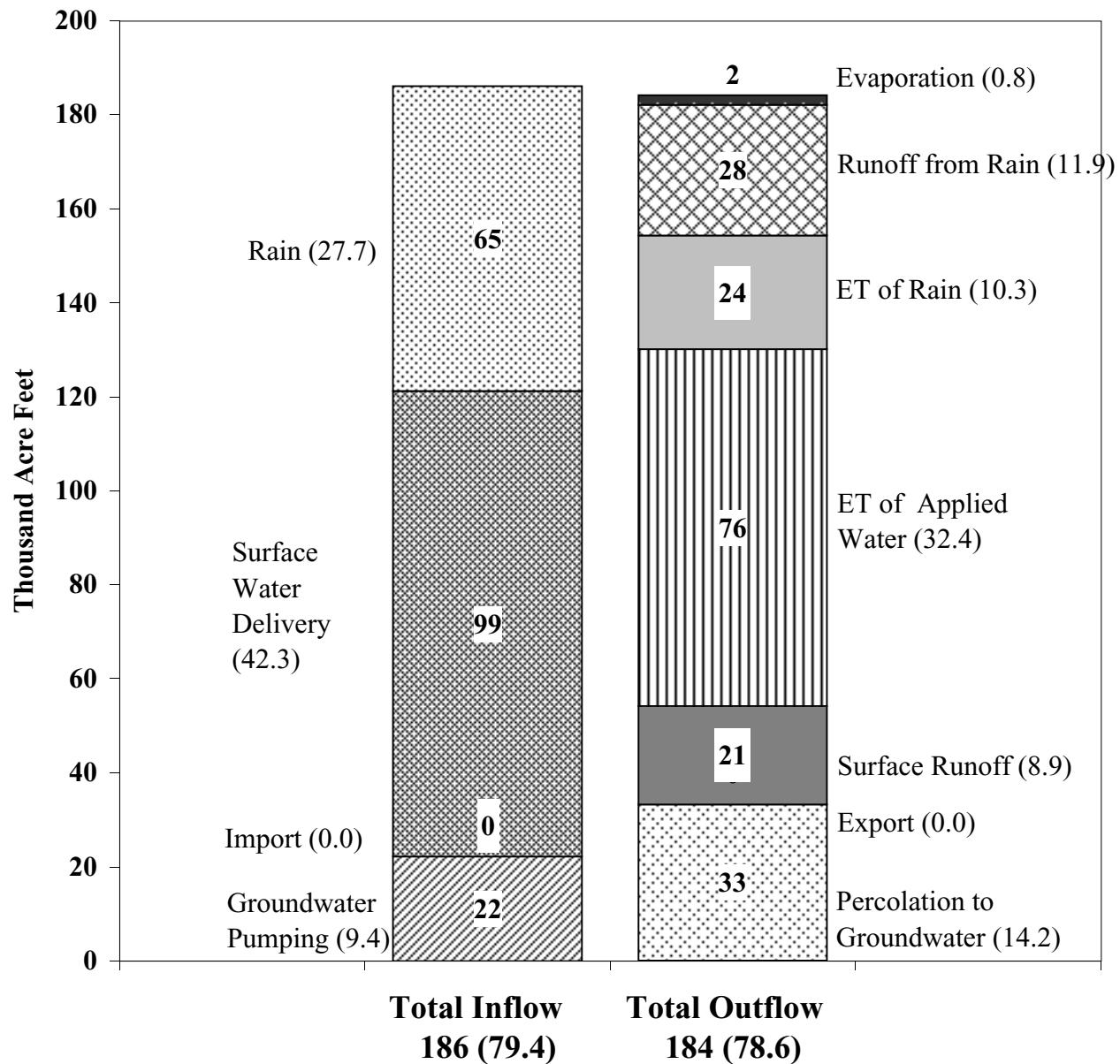


Figure A.1.3 Cropping Pattern, Sub-Region 1, Redding Basin.



Sub-Region 1 Water Balance



Farm Water Balance, Average Year, Sub-Region 1, Redding Basin. Values are Thousand Acre-Feet, with inches per acre shown in (). All data is from the Central Valley Ground and Surface Water Model (CVGSM).

**Table A.1.1. Descriptive List of Targeted Benefits, Sub-Region 1,
Redding Basin**

TB # (1) [duplicate]	Location (2)	Category of Targeted Benefit (3)	Beneficiary (4)	General Time- Frame (5)	Conceptual Completeness (6)
1	Battle Creek	Flow: Provide flow to improve aquatic ecosystem conditions	Eco	TBD	Incomplete
2	Bear Creek	Flow: Provide flow to improve aquatic ecosystem conditions	Eco	TBD	Defined
3	Clear Creek	Flow: Provide flow to improve aquatic ecosystem conditions	Eco	Year round	Incomplete
4	Cotton-wood Creek	Flow: Provide flow to improve aquatic ecosystem conditions	Eco	Summer & fall	Undefined
5	Cow Creek	Flow: Provide flow to improve aquatic ecosystem conditions	Eco	October	Incomplete
6 [13, 20 30, 57, 75]	Sacramento River below Keswick	Flow: Provide flow to improve aquatic ecosystem conditions	Eco	Fall - spring	Undefined
7	All affected lands	Quantity: Decrease nonproductive ET to increase water supply for beneficial uses	Eco, Ag or M&I	Year round	Complete
8	All suitable lands	Quantity: Provide long-term diversion flexibility to increase the water supply for beneficial uses	Eco, Ag or M&I	TBD	Incomplete

**Table A.1.2. Quantified Targeted Benefits, Sub-Region 1,
Redding Basin**

TB # (1) [duplicate]	Source and Description of Quantified Targeted Benefit (7)
1	ERPP: Augment flow in Battle Creek by 25 to 50 cfs.
2	ERPP: Augment flow in Bear Creek by 10 to 20 cfs.
3	ERPP: Increase flow in Clear Creek to 150 to 200 cfs from October 1 to June 1 and to 100 to 150 cfs from June 1 to September 30.
4	ERPP: In Cottonwood Creek during summer and fall, more closely emulate the seasonal streamflow pattern, so that flows are sufficient for chinook salmon holding and spawning in most year types by providing up to 20 to 50 cfs. These flows can mobilize and transport sediments, allow upstream and downstream fish passage, create point bars, and contribute to stream channel meander and riparian vegetation succession
5	ERPP: Increase flow in Cow Creek by 25 to 50 cfs, corresponding to the natural seasonal runoff pattern, and maintain 25 to 75 cfs during October.
6 [13, 20 30, 57, 75]	ERPP: More closely emulate seasonal streamflow patterns in dry and normal year- types by allowing a late-winter or early-spring flow event of approximately 8,000 to 10,000 cfs in dry years and 15,000 to 20,000 cfs in below normal water-years to occur below Keswick Dam; Maintain base flows of 6,000 to 8,000 cfs during fall.
7	Core: Reduce unwanted ET by _____ acre-feet per year.
8	Core: Enhance the effectiveness of potential conjunctive use programs by reducing flows to groundwater to _____ acre feet per year during periods of shortage; and increasing flows to groundwater to _____ acre feet per year during periods of excess.

Table A.1.3. Quantified Targeted Benefit Change, Sub-Region 1, Redding Basin								
TB # (1) [duplicate]	Reference Condition		Quantified Targeted Benefit		Quantified Targeted Benefit Change			Specific Time-Frame (11)
	Data Source (8)	Data Availability (9)	Data Source (8)	Data Availability (9)	Data Source (8)	Data Availability (9)	Range of Values (10)	
1	CVGSM	Unproven-precise	Change given	Not available	ERPP	Rough estimate	25 - 50 cfs	TBD
2	CVGSM	Unproven-precise	Change given	Not available	ERPP	Rough estimate	10 - 20 cfs	TBD
3	CVGSM	Unproven-precise	ERPP	Rough estimate	Calculated	Rough estimate	0 - 50 cfs	Oct - May Jun - Sep
4	CVGSM	Unproven-precise	ERPP	Rough estimate	Calculated	Rough estimate	TBD	TBD
5	CVGSM	Unproven-precise	Change given	Not available	ERPP	Rough estimate	25 - 50 cfs, up to 75 cfs	Year round October
6 [13, 20 30, 57, 75]	CVGSM	Unproven-precise	ERPP	Rough estimate	Not available	Rough estimate	44 - 180 TAF/yr	Year round Fall
7	CVGSM	Unproven-precise	Core	Rough estimate	Calculated	Rough estimate	6.5 TAF/yr	TBD
8	CVGSM	Unproven-precise	Core	Rough estimate	Calculated	Rough estimate	TBD	TBD

**Table A.1.4. Quantifiable Objective, Sub-Region 1,
Redding Basin**

TB # (1) [duplicate]	Achievable Agricultural Potential (12)	Quantifiable Objective (13)
1	TBD	TBD
2	TBD	TBD
3	TBD	TBD
4	TBD	TBD
5	TBD	TBD
6 [13, 20 30, 57, 75]	1,044 - 1,897 TAF per year	44 - 180 TAF per year
7	6.5 TAF per year plus additional water generated through reduction in application through improved irrigation systems	6.5 TAF per year plus additional water generated through reduction in application through improved irrigation systems
8	TBD	TBD

**Table A.1.5. Affected Flow Paths and Possible Actions, Sub-Region 1,
Redding Basin**

TB # (1) [duplicate]	Affected Flow Paths (14)	Possible Actions (provided as examples; proposers are encouraged to consider local actions that are not listed) (15)
1	TBD	TBD
2	TBD	TBD
3	TBD	TBD
4	TBD	TBD
5	TBD	TBD
6 [13, 20 30, 57, 75]	Surface and Groundwater Return	Improve farm irrigation management (such as irrigation scheduling) and more uniform irrigation methods (such as shorter furrows, sprinkler, or drip). Reduction in operational spill through improved management, canal automation or regulatory storage. Reduction in canal seepage through canal lining or piping.
7	ETAW	Reduce ET flows using improved irrigation methods, such as drip irrigation, and planting densities.
8	TBD	TBD

Detail 6, Flow/Timing Sacramento River

Step 1. Quantified Targets

A. Flow Target for Sacramento River

source: CVGSM

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Thousands Acre Feet Total
1) Critical	---	---	179.0	179.0	179.0	---	---	---	---	138.0	138.0	138.0	951.0
2) Dry	---	---	179.0	179.0	179.0	---	---	---	---	138.0	138.0	138.0	951.0
3) B Norm	---	---	179.0	346.0	346.0	---	---	---	---	138.0	138.0	138.0	1285.0
4) A Norm	---	---	---	---	---	---	---	---	---	---	---	---	---
5) Wet	---	---	---	---	---	---	---	---	---	---	---	---	---
Wtd Avg.	---	---	---	---	---	---	---	---	---	---	---	---	---

Step 2. Reference Condition

A. Sacramento River Flows

source: CVGSM

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Thousands Acre Feet Total
1) Critical	295.6	307.7	394.9	435.1	422.2	399.0	437.5	393.8	263.1	258.4	277.9	282.8	4167.9
2) Dry	312.4	412.4	374.1	390.8	447.9	455.5	534.9	491.5	323.6	307.9	318.4	390.1	4759.5
3) B Norm	490.6	438.4	417.4	497.2	492.7	484.2	544.5	504.0	360.1	340.8	320.6	336.5	5226.9
4) A Norm	683.8	912.4	819.2	532.2	499.5	461.3	532.7	500.8	358.7	291.5	345.2	424.8	6362.2
5) Wet	1076.5	1177.6	869.9	797.8	727.2	601.2	606.9	598.3	474.8	369.4	486.8	878.4	8664.7
Wtd Avg.	627.4	702.1	594.5	560.5	545.4	499.0	545.8	515.0	373.7	324.7	368.3	518.4	6174.8

B. Sacramento River Total Diversion - Riparian

source: CVGSM

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Thousands Acre Feet Total
1) Critical	1.8	1.9	11.1	110.8	154.3	153.4	155.2	135.9	64.3	25.7	3.3	1.7	819.4
2) Dry	2.5	2.5	7.0	100.3	166.4	180.3	189.4	173.0	76.5	24.4	5.4	3.5	931.3
3) B Norm	2.1	2.6	4.6	85.9	167.1	175.4	189.4	172.7	79.8	26.3	6.9	2.9	915.8
4) A Norm	3.4	2.1	3.1	74.6	168.5	180.9	192.9	175.5	79.6	25.2	3.7	3.3	912.7
5) Wet	2.4	2.2	3.7	65.4	162.2	180.2	191.3	177.3	82.8	23.8	3.9	2.3	897.5
Wtd Avg.	2.4	2.3	5.6	84.8	164.0	175.8	186.0	169.7	77.9	24.9	4.8	2.8	900.8

C. Sacramento River Total Diversion - Corning Canal

source: CVGSM

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Thousands Acre Feet Total
1) Critical	0.11	0.31	0.34	1.36	2.57	2.50	3.52	3.04	1.91	0.66	0.12	0.20	16.64
2) Dry	0.00	0.01	0.11	0.83	1.94	1.76	2.75	2.53	1.31	0.34	0.01	0.00	11.58
3) B Norm	0.00	0.06	0.18	0.70	1.29	1.56	1.74	1.39	1.04	0.53	0.11	0.01	8.59
4) A Norm	0.00	0.00	0.03	0.59	1.72	2.14	2.77	2.52	1.44	0.41	0.04	0.01	11.69
5) Wet	0.00	0.05	0.20	0.88	2.61	2.78	3.78	3.31	2.19	0.73	0.04	0.00	16.58
Wtd Avg.	0.01	0.07	0.17	0.86	2.07	2.18	2.96	2.60	1.62	0.55	0.06	0.03	13.17

D. Sacramento River Total Diversion - Tehama-Colusa Canal

source: CVGSM

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Thousands Acre Feet Total
1) Critical	0.07	0.08	0.72	7.80	15.63	14.52	24.23	12.98	6.58	1.23	0.02	0.14	84.01
2) Dry	0.00	0.00	0.10	5.83	14.78	11.48	21.55	12.88	6.48	1.33	0.03	0.00	74.43
3) B Norm	0.02	0.01	0.01	1.29	2.14	2.57	4.68	4.05	1.02	0.04	0.02	0.01	15.86
4) A Norm	0.27	0.00	0.04	2.62	10.46	12.44	17.93	10.90	3.41	0.83	0.39	0.67	59.97
5) Wet	0.00	0.14	0.08	4.44	11.26	8.74	16.42	9.81	4.93	1.01	0.02	0.00	56.85
Wtd Avg.	0.05	0.06	0.15	4.32	10.69	9.36	16.44	9.91	4.51	0.89	0.07	0.11	56.56

E. Sacramento River Total Diversion - Glenn-Colusa Canal

source: CVGSM

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
1) Critical	0.0	0.0	1.1	75.2	94.0	91.1	94.8	93.0	41.2	17.7	3.4	0.2	511.8
2) Dry	0.0	0.0	6.4	77.9	105.6	108.1	112.1	110.6	51.9	25.6	9.8	1.4	609.4
3) B Norm	0.2	0.0	5.9	70.4	117.3	119.1	126.8	118.8	63.9	30.6	8.6	1.7	663.3
4) A Norm	0.0	0.0	1.6	57.3	108.3	109.9	115.1	112.3	57.7	26.2	5.0	0.0	593.4
5) Wet	0.0	0.0	3.7	65.0	123.3	122.8	127.7	125.6	64.6	26.2	3.2	0.4	662.6
Wtd Avg.	0.0	0.0	4.1	69.4	112.2	112.8	118.0	114.8	57.6	25.8	6.1	0.8	621.7

F. Sacramento River Total Diversion - Right Bank Diverters

source: CVGSM

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
1) Critical	0.00	0.00	0.99	12.73	16.24	16.68	17.03	14.11	5.60	1.21	0.00	0.00	84.60
2) Dry	0.01	0.00	0.11	11.29	16.32	17.96	19.12	16.73	5.78	1.33	0.21	0.55	89.40
3) B Norm	0.16	0.00	0.23	9.80	12.85	13.31	15.25	11.94	4.45	1.09	0.28	0.57	69.92
4) A Norm	0.06	0.00	0.02	8.83	21.09	21.19	22.29	19.21	7.51	1.44	0.34	0.73	102.72
5) Wet	0.01	0.00	0.11	10.50	17.18	16.89	17.69	14.93	4.79	1.49	0.80	0.61	85.01
Wtd Avg.	0.05	0.00	0.24	10.61	16.49	16.94	18.04	15.19	5.41	1.33	0.39	0.52	85.22

G. Sacramento River Total Diversion - South Sutter Diversion

source: CVGSM

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
1) Critical	0.00	0.00	0.22	3.78	8.67	8.33	8.67	7.78	3.33	0.56	0.00	0.00	41.33
2) Dry	0.00	0.00	0.00	3.13	8.00	7.50	8.19	8.31	3.31	0.50	0.00	0.00	38.94
3) B Norm	0.00	0.00	0.29	3.36	6.14	6.86	7.36	6.21	2.21	0.64	0.07	0.00	33.14
4) A Norm	0.00	0.00	0.00	2.00	8.44	9.00	9.44	9.11	3.78	0.33	0.00	0.00	42.11
5) Wet	0.00	0.00	0.05	3.90	12.86	12.29	13.43	13.05	5.86	1.19	0.00	0.00	62.62
Wtd Avg.	0.00	0.00	0.10	3.35	9.25	9.13	9.84	9.36	3.93	0.72	0.01	0.00	45.70

H. Reference Condition for Sacramento River

source: calculated = Step 2A. - Step 2B. - Step 2C. - Step 2D. - Step 2E. - Step 2F. - Step 2G.

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	TAF
1) Critical	293.6	305.4	380.3	223.4	130.8	112.4	134.1	127.0	140.2	211.4	271.0	280.6	2610.1
2) Dry	309.9	409.9	360.3	191.5	134.9	128.4	181.7	167.5	178.3	254.5	303.0	384.6	3004.4
3) B Norm	488.1	435.7	406.2	325.7	185.9	165.4	199.3	188.9	207.7	281.6	304.6	331.3	3520.3
4) A Norm	680.1	910.3	814.4	386.2	181.0	125.7	172.2	171.3	205.3	237.0	335.8	420.2	4639.5
5) Wet	1074.1	1175.2	862.0	647.7	397.7	257.5	236.6	254.4	309.6	315.0	478.8	875.0	6883.6
Wtd Avg.	624.8	699.7	584.1	387.1	230.7	172.8	194.5	193.5	222.8	270.5	356.9	514.1	4451.6

Step 3. Quantified Targeted Benefit Change

A. Quantified Targeted Benefit Change

source: calculated = Step 1A. - Step 2H.

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
1) Critical	---	---	---	---	48.2	---	---	---	---	---	---	---	48.2
2) Dry	---	---	---	---	44.1	---	---	---	---	---	---	---	44.1
3) B Norm	---	---	---	20.3	160.1	---	---	---	---	---	---	---	180.4
4) A Norm	---	---	---	---	---	---	---	---	---	---	---	---	---
5) Wet	---	---	---	---	---	---	---	---	---	---	---	---	---
Wtd Avg.	---	---	---	---	---	---	---	---	---	---	---	---	---

Step 4. Area Affected By Targeted Benefit

A. Total Diversion Sub-Region 1

source: CVGSM

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
1) Critical	0.1	0.2	1.0	16.0	20.8	23.0	25.8	24.5	21.2	15.9	1.2	0.2	149.7
2) Dry	0.0	0.0	0.6	14.9	23.6	25.2	27.4	26.2	23.1	17.0	2.2	0.8	161.1
3) B Norm	0.0	0.0	0.3	14.2	23.9	25.4	27.0	25.8	22.5	18.8	2.2	0.2	160.4
4) A Norm	1.0	0.0	0.0	12.7	21.1	25.9	27.7	27.0	23.1	16.4	0.6	0.1	155.8
5) Wet	0.0	0.0	0.4	11.6	22.6	25.9	28.4	27.4	24.7	16.2	0.7	0.0	158.0
Wtd Avg.	0.2	0.0	0.4	13.6	22.7	25.3	27.4	26.4	23.2	16.9	1.4	0.3	157.8

B. Sub-Region 1 Streamflow Diversion Ratio

source: calculated = Step 2B./Step 4A.

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1) Critical	0.00	0.63	0.92	0.98	0.97	0.95	0.94	0.95	0.97	0.98	0.90	0.53
2) Dry	0.00	0.00	0.96	0.99	0.98	0.98	0.96	0.97	0.98	0.99	0.98	0.94
3) B Norm	0.00	0.00	0.98	0.99	0.99	0.98	0.98	0.98	0.99	0.99	0.97	0.94
4) A Norm	0.97	0.00	0.00	0.99	0.98	0.97	0.96	0.96	0.98	0.99	0.91	0.77
5) Wet	0.00	0.00	0.90	0.99	0.97	0.97	0.96	0.96	0.97	0.99	0.93	0.00
Wtd Avg.	0.13	0.08	0.81	0.99	0.98	0.97	0.96	0.97	0.98	0.99	0.94	0.58

C. Total Diversion Sub-Region 2

source: CVGSM

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
1) Critical	0.22	0.42	2.23	10.29	13.04	12.14	15.74	14.41	10.47	4.88	0.46	0.33	84.64
2) Dry	0.00	0.01	1.80	13.27	17.21	16.84	19.90	18.30	12.75	5.15	0.69	0.06	105.99
3) B Norm	0.00	0.06	2.54	12.49	17.93	18.56	20.11	17.75	13.61	7.89	1.54	0.08	112.55
4) A Norm	0.00	0.00	0.92	12.37	19.07	19.94	21.36	19.10	13.44	4.87	1.09	0.12	112.28
5) Wet	0.00	0.10	2.39	10.31	20.25	21.32	23.80	21.85	17.10	6.06	0.80	0.00	123.99
Wtd Avg.	0.03	0.10	2.07	11.70	17.98	18.35	20.78	18.87	14.04	5.91	0.92	0.09	110.83

D. Sub-Region 2 Streamflow Diversion Ratio

source: calculated = Step 2B./Step 4C.

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1) Critical	0.50	0.74	0.15	0.18	0.56	0.63	1.00	1.02	0.63	0.13	0.27	0.62
2) Dry	---	1.00	0.06	0.06	0.14	0.13	0.16	0.16	0.10	0.07	0.01	0.00
3) B Norm	---	1.00	0.07	0.06	0.07	0.09	0.09	0.09	0.08	0.07	0.07	0.09
4) A Norm	---	---	0.04	0.05	0.10	0.13	0.16	0.15	0.11	0.21	0.09	0.09
5) Wet	---	0.50	0.08	0.09	0.15	0.15	0.18	0.17	0.13	0.12	0.05	1.00
Wtd Avg.	---	---	0.08	0.08	0.18	0.19	0.26	0.26	0.18	0.11	0.08	0.42

E. Total Diversion Sub-Region 3

source: CVGSM

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
1) Critical	0.1	0.1	2.8	95.7	125.5	121.9	135.3	119.3	53.0	20.1	3.5	0.3	677.5
2) Dry	0.0	0.0	6.6	95.1	136.7	137.5	152.8	140.2	64.1	28.2	10.0	2.0	773.2
3) B Norm	0.4	0.0	6.1	81.5	132.3	134.9	146.7	134.8	69.4	31.7	8.9	2.3	749.0
4) A Norm	0.3	0.0	1.6	68.8	139.9	143.5	155.3	142.4	68.6	28.4	5.7	1.4	755.9
5) Wet	0.0	0.1	3.9	79.9	151.8	148.4	161.8	150.3	74.3	28.7	4.1	1.0	804.4
Wtd Avg.	0.1	0.1	4.5	84.4	139.3	139.0	152.3	139.7	67.4	28.0	6.6	1.5	763.0

F. Sub-Region 3 Streamflow Diversion Ratio

source: calculated = Step 2B./Step 4E.

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1) Critical	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
2) Dry	1.00	---	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
3) B Norm	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
4) A Norm	1.00	---	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
5) Wet	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Wtd Avg.	1.00	---	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

G. Total Diversion Sub-Region 4

source: CVGSM

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
1) Critical	0.2	0.2	7.0	75.5	103.5	99.8	97.9	83.9	31.8	6.3	0.3	0.0	506.5
2) Dry	0.4	0.4	3.8	66.4	108.9	116.5	121.6	109.5	37.7	3.6	0.9	0.4	570.2
3) B Norm	0.3	0.6	1.8	55.8	110.3	114.1	122.8	110.3	40.2	3.6	2.3	0.4	562.4
4) A Norm	0.4	0.3	1.1	50.8	114.9	116.0	124.3	110.9	38.5	4.9	0.3	0.0	562.5
5) Wet	0.5	0.4	1.3	43.0	107.9	118.1	123.6	113.0	41.5	3.8	0.9	0.2	554.2
Wtd Avg.	0.4	0.4	2.7	56.3	109.0	114.3	119.7	107.6	38.7	4.2	1.0	0.3	554.5

H. Sub-Region 4 Streamflow Diversion Ratio

source: calculated = Step 2B./Step 4G.

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1) Critical	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	---
2) Dry	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
3) B Norm	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
4) A Norm	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
5) Wet	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Wtd Avg.	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	---

I. Total Diversion Sub-Region 6

source: CVGSM

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
1) Critical	0.99	1.63	6.07	24.12	34.53	32.70	37.63	27.80	14.00	5.12	1.33	0.22	186.16
2) Dry	0.00	0.00	1.72	23.87	43.14	46.30	51.05	41.66	20.81	5.78	2.36	0.36	237.03
3) B Norm	0.10	0.16	2.54	22.44	43.36	47.78	50.06	40.76	20.94	5.79	0.99	0.36	235.28
4) A Norm	0.11	0.11	0.33	16.16	46.11	50.31	51.27	44.04	22.56	4.37	3.00	0.67	239.03
5) Wet	0.14	0.24	1.58	19.54	47.51	53.41	57.56	49.19	28.05	7.53	2.64	0.29	267.69
Wtd Avg.	0.21	0.33	2.23	21.29	43.78	47.51	51.11	42.27	22.38	6.04	2.12	0.36	239.63

J. Sub-Region 6 Streamflow Diversion Ratio

source: calculated = Step 2B./Step 4I.

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1) Critical	0.00	0.00	0.02	0.18	0.24	0.23	0.21	0.24	0.13	0.00	0.00	0.00
2) Dry	---	---	0.04	0.19	0.22	0.24	0.23	0.26	0.15	0.05	0.11	0.88
3) B Norm	0.00	0.45	0.06	0.17	0.23	0.23	0.22	0.23	0.14	0.12	0.29	0.60
4) A Norm	1.00	0.00	0.33	0.14	0.16	0.23	0.23	0.24	0.16	0.10	0.19	0.83
5) Wet	0.00	0.00	0.00	0.09	0.14	0.17	0.16	0.18	0.11	0.06	0.14	0.50
Wtd Avg.	---	---	0.07	0.15	0.19	0.22	0.20	0.23	0.13	0.07	0.15	0.59

K. Total Diversion Sub-Region 7

source: CVGSM

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
1) Critical	9.78	7.97	11.20	30.03	48.82	52.39	57.52	51.73	31.81	18.40	12.12	10.52	342.30
2) Dry	9.49	8.26	10.31	30.06	52.66	58.82	65.28	61.97	38.93	17.43	10.97	9.68	373.86
3) B Norm	9.35	8.34	11.13	26.02	49.84	55.89	63.18	60.44	39.22	19.73	11.98	9.91	365.02
4) A Norm	9.47	9.66	11.16	20.62	53.01	59.92	66.10	62.70	39.39	16.14	10.86	9.80	368.82
5) Wet	9.96	8.61	11.88	24.30	58.14	64.86	73.98	70.61	44.04	19.97	11.77	10.73	408.85
Wtd Avg.	9.64	8.52	11.18	26.25	53.30	59.37	66.60	63.05	39.68	18.63	11.55	10.17	377.94

L. Sub-Region 7 Streamflow Diversion Ratio

source: calculated = Step 2B./Step 4K.

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1) Critical	0.00	0.00	0.13	0.55	0.56	0.55	0.52	0.50	0.33	0.08	0.00	0.00
2) Dry	0.00	0.00	0.04	0.51	0.56	0.54	0.51	0.50	0.33	0.08	0.00	0.00
3) B Norm	0.00	0.02	0.06	0.49	0.53	0.50	0.51	0.49	0.34	0.06	0.01	0.00
4) A Norm	0.00	0.00	0.00	0.41	0.57	0.55	0.53	0.52	0.38	0.08	0.00	0.05
5) Wet	0.00	0.01	0.00	0.44	0.60	0.56	0.54	0.53	0.37	0.10	0.00	0.01
Wtd Avg.	0.00	0.01	0.04	0.48	0.57	0.54	0.52	0.51	0.35	0.08	0.00	0.01

M. Total Diversion Sub-Region 8

source: CVGSM

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
1) Critical	3.38	2.89	5.80	13.89	20.43	23.72	24.02	20.93	14.16	11.26	5.02	4.51	150.01
2) Dry	2.92	2.59	4.59	13.19	21.69	27.21	28.44	25.49	18.09	10.98	5.19	3.77	164.15
3) B Norm	2.56	2.59	5.53	14.44	25.54	32.44	32.81	28.34	19.79	13.06	4.64	3.36	185.09
4) A Norm	2.79	2.64	3.48	11.48	22.56	31.88	32.29	28.56	17.98	10.78	4.99	3.10	172.51
5) Wet	3.21	2.74	5.13	11.37	26.28	34.82	38.24	34.70	22.73	13.71	4.85	3.65	201.45
Wtd Avg.	2.98	2.68	4.96	12.76	23.82	30.74	32.24	28.68	19.32	12.24	4.93	3.66	179.00

N. Sub-Region 8 Streamflow Diversion Ratio

source: calculated = Step 2B./Step 4M.

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1) Critical	0.46	0.54	0.33	0.18	0.17	0.15	0.16	0.19	0.22	0.25	0.38	0.34
2) Dry	0.71	0.80	0.49	0.20	0.15	0.14	0.16	0.17	0.19	0.25	0.40	0.55
3) B Norm	0.73	0.72	0.37	0.18	0.12	0.12	0.13	0.14	0.18	0.21	0.46	0.59
4) A Norm	0.68	0.67	0.54	0.20	0.15	0.13	0.14	0.16	0.20	0.26	0.45	0.68
5) Wet	0.58	0.63	0.42	0.22	0.13	0.11	0.12	0.13	0.17	0.20	0.39	0.50
Wtd Avg.	0.64	0.68	0.43	0.20	0.14	0.13	0.14	0.15	0.19	0.23	0.41	0.53

Step 5. Water Balance - Flow Path Elements

A. Rain Sub-Region 3 (inflow)

source: CVGSM Sub-Region 1 - 4 & 6 - 8 * Step 4B.

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
1) Critical	154.9	114.3	71.2	41.6	54.9	19.5	4.4	22.8	24.9	49.5	77.9	---	635.7
2) Dry	---	---	155.4	65.5	34.2	13.8	8.0	20.1	48.6	51.0	124.3	220.2	741.1
3) B Norm	---	279.3	117.1	73.4	24.7	18.2	14.9	27.1	50.5	69.0	154.0	197.7	1,026.0
4) A Norm	---	---	162.3	65.7	32.9	6.3	8.2	18.1	45.9	105.6	177.5	245.1	867.7
5) Wet	---	231.9	172.3	116.3	25.5	20.7	11.6	25.2	34.3	118.6	225.2	394.2	1,375.8
Wtd Avg.	---	---	142.7	79.5	32.2	16.6	10.1	23.2	41.2	82.1	161.9	---	994.8

B. Surface Water Diversions Sub-Region 3 (inflow)

source: CVGSM Sub-Region 1 - 4 & 6 - 8 * Step 4B.

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
1) Critical	3.6	10.3	51.5	335.1	392.4	451.3	525.5	471.3	98.0	36.2	14.5	---	2,389.7
2) Dry	---	---	15.1	281.8	380.3	444.7	458.2	412.8	80.3	41.8	15.0	7.8	2,137.7
3) B Norm	---	4.8	17.2	277.3	379.8	434.5	450.6	401.1	85.7	41.4	15.2	7.6	2,115.0
4) A Norm	---	---	5.3	252.5	370.9	466.6	474.0	420.1	94.5	30.8	15.2	8.2	2,138.1
5) Wet	---	3.1	6.2	214.4	382.7	458.3	474.9	423.8	98.1	31.1	14.8	8.3	2,115.8
Wtd Avg.	---	---	16.3	263.5	381.3	450.5	472.6	422.4	91.0	36.3	14.9	---	2,159.4

C. Import Sub-Region 3 (inflow)

source: CVGSM Sub-Region 1 - 4 & 6 - 8 * Step 4B.

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
1) Critical	3.5	4.4	8.2	66.9	65.7	76.6	78.6	69.4	26.0	19.1	13.0	---	431.5
2) Dry	---	---	4.4	74.4	96.5	114.9	116.5	104.1	31.8	23.1	13.2	7.9	586.7
3) B Norm	---	3.3	5.3	79.0	109.5	126.2	131.6	117.9	34.9	23.1	13.7	7.8	652.1
4) A Norm	---	---	2.9	74.3	108.7	135.6	135.2	122.2	38.3	20.5	13.6	8.4	659.8
5) Wet	---	3.0	3.2	60.1	110.7	129.9	132.5	119.8	37.6	21.6	13.6	8.4	640.4
Wtd Avg.	---	---	4.5	70.0	101.0	119.5	121.9	109.5	34.3	21.8	13.5	---	605.6

D. Groundwater Pumping Sub-Region 3 (inflow)

source: CVGSM Sub-Region 1 - 4 & 6 - 8 * Step 4B.

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
1) Critical	0.6	4.2	41.6	260.7	292.4	363.8	430.7	361.4	209.8	17.4	1.8	---	1,984.3
2) Dry	---	---	9.2	136.5	178.2	226.7	236.1	194.8	155.2	12.7	1.1	0.7	1,151.3
3) B Norm	---	2.6	8.4	118.0	150.1	190.7	198.1	157.1	149.4	12.9	1.0	1.3	989.4
4) A Norm	---	---	2.8	103.3	139.8	197.3	203.6	162.8	149.7	13.6	1.1	0.9	974.9
5) Wet	---	0.7	3.6	95.8	134.6	178.0	185.5	148.3	149.4	8.8	0.4	1.0	906.1
Wtd Avg.	---	---	10.7	132.2	169.1	218.6	234.1	190.6	158.7	12.3	0.9	---	1,129.5

E. ET Rain Sub-Region 3 (outflow, irrecoverable)

source: CVGSM Sub-Region 1 - 4 & 6 - 8 * Step 4B.

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
1) Critical	44.0	73.9	55.1	-7.1	35.6	18.5	1.7	16.4	54.0	86.8	45.5	---	424.4
2) Dry	---	---	104.4	3.4	19.0	9.8	5.8	15.2	69.9	89.5	49.3	54.6	420.9
3) B Norm	---	103.9	99.6	5.1	13.1	15.6	9.5	18.3	69.7	93.4	60.6	53.2	541.8
4) A Norm	---	---	121.9	11.9	18.6	2.6	5.1	13.6	67.9	107.6	59.5	59.0	467.7
5) Wet	---	82.9	109.1	33.2	10.8	12.7	7.4	17.3	60.0	105.7	64.7	64.4	568.3
Wtd Avg.	---	---	100.7	12.5	17.4	12.0	6.4	16.4	64.5	97.2	57.1	---	496.8

F. Runoff from Rain Sub-Region 3 (outflow, irrecoverable)

source: CVGSM Sub-Region 1 - 4 & 6 - 8 * Step 4B.

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
1) Critical	60.5	43.2	22.2	8.8	19.8	3.9	0.7	6.3	6.3	12.2	18.9	---	202.8
2) Dry	---	---	77.0	19.2	7.9	2.6	1.8	5.7	18.8	15.9	43.3	88.4	280.7
3) B Norm	---	152.3	54.6	25.8	5.5	3.2	4.0	9.1	18.5	24.3	55.3	87.4	440.1
4) A Norm	---	---	80.7	20.1	8.4	0.5	1.6	6.1	17.5	39.0	70.9	114.2	359.1
5) Wet	---	140.6	89.8	46.0	5.4	4.1	2.3	8.3	11.6	50.9	99.0	223.4	681.5
Wtd Avg.	---	---	69.7	27.5	8.3	3.1	2.2	7.3	14.7	30.8	63.1	---	435.1

G. ETAW Sub-Region 3 (outflow, irrecoverable)

source: CVGSM Sub-Region 1 - 4 & 6 - 8 * Step 4B.

Flow Path Not Affected

Thousand Acre Feet

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
1) Critical	1.7	12.0	64.4	228.3	334.0	474.2	571.7	477.5	249.2	51.7	14.4	---	2,479.1
2) Dry	---	---	18.3	212.6	318.1	439.3	488.0	407.6	200.3	51.5	13.3	4.2	2,153.2
3) B Norm	---	2.8	20.4	208.1	315.6	424.6	472.9	391.2	197.7	50.1	12.4	3.9	2,099.8
4) A Norm	---	---	7.1	197.6	311.4	444.9	487.9	405.4	206.1	39.8	10.4	2.1	2,112.8
5) Wet	---	1.8	8.8	175.8	320.3	427.6	475.0	394.4	208.5	36.5	6.7	0.2	2,055.7
Wtd Avg.	---	---	20.4	200.6	319.5	438.0	491.9	409.1	209.4	45.1	10.9	---	2,149.9

H. Export Sub-Region 3 (outflow, irrecoverable)

source: CVGSM Sub-Region 1 - 4 & 6 - 8 * Step 4B.

Thousand Acre Feet

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
1) Critical	3.6	5.3	8.8	56.0	111.4	137.2	196.9	179.7	35.4	17.3	12.7	---	764.3
2) Dry	---	---	2.9	37.7	65.6	75.3	84.7	79.4	26.3	19.7	12.5	7.4	411.4
3) B Norm	---	3.5	3.4	36.1	55.1	67.5	72.2	66.2	26.7	19.7	13.1	7.2	370.8
4) A Norm	---	---	1.5	33.0	60.0	80.2	89.0	81.4	29.0	19.2	13.0	7.9	414.2
5) Wet	---	3.0	1.8	32.5	69.8	83.0	92.2	84.5	29.9	19.8	13.2	7.9	437.7
Wtd Avg.	---	---	3.3	37.6	70.0	84.8	99.6	91.6	29.0	19.4	13.0	---	457.6

I. Surface Water Return Sub-Region 3 (outflow, recoverable)

source: CVGSM Sub-Region 1 - 4 & 6 - 8 * Step 4B.

Thousand Acre Feet

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
1) Critical	0.0	0.9	15.0	260.6	181.8	167.1	149.2	132.2	29.5	4.1	0.1	---	940.5
2) Dry	---	---	3.3	143.7	161.5	162.1	132.4	122.1	22.5	4.2	0.1	0.0	751.9
3) B Norm	---	0.1	3.3	135.3	165.1	150.8	125.4	112.4	21.9	4.0	0.1	0.0	718.3
4) A Norm	---	---	0.3	109.0	139.4	166.7	128.4	115.1	24.4	3.2	0.1	0.0	686.5
5) Wet	---	0.0	0.3	82.1	137.0	147.9	120.2	108.6	23.7	3.2	0.1	0.0	623.0
Wtd Avg.	---	---	3.5	133.9	154.6	156.7	128.9	116.4	23.9	3.7	0.1	---	721.9

J. Percolation to Groundwater Sub-Region 3 (outflow, recoverable)

source: CVGSM Sub-Region 1 - 4 & 6 - 8 * Step 4B.

Thousand Acre Feet

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
1) Critical	19.8	6.5	12.7	114.8	113.6	108.4	117.2	116.5	26.2	1.9	3.6	---	641.3
2) Dry	---	---	6.6	91.7	97.6	98.5	91.9	92.8	17.1	1.2	9.4	27.3	534.0
3) B Norm	---	36.7	4.7	88.0	91.0	95.2	94.1	94.3	20.5	2.3	11.2	26.7	564.8
4) A Norm	---	---	4.8	87.3	95.1	94.2	91.5	89.0	20.4	1.8	16.4	41.4	542.0
5) Wet	---	28.4	6.3	73.4	88.6	95.1	90.1	91.0	19.3	2.6	24.2	81.4	600.5
Wtd Avg.	---	---	6.7	87.8	95.3	97.5	95.1	95.1	20.1	2.0	14.4	---	575.5

K. Evaporation Flows Sub-Region 3 (outflow, irrecoverable)

source: = 0.02 * (Step 5B + 5C - 5H)

= 0.02 * (Surface Water Diversion + Import - Export)

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
1) Critical	0.1	0.2	1.0	6.9	6.9	7.8	8.1	7.2	1.8	0.8	0.3	---	41.1
2) Dry	---	---	0.3	6.4	8.2	9.7	9.8	8.8	1.7	0.9	0.3	0.2	46.3
3) B Norm	---	0.1	0.4	6.4	8.7	9.9	10.2	9.1	1.9	0.9	0.3	0.2	47.9
4) A Norm	---	---	0.1	5.9	8.4	10.4	10.4	9.2	2.1	0.6	0.3	0.2	47.7
5) Wet	---	0.1	0.2	4.8	8.5	10.1	10.3	9.2	2.1	0.7	0.3	0.2	46.4
Wtd Avg.	---	---	0.4	5.9	8.2	9.7	9.9	8.8	1.9	0.8	0.3	---	46.1

L. Sub-Region Water Balance 3

source: = Step 5.(A + B + C + D) - Step5. (E + F + G + H + I + J + K)
= (Rain + Surface Water Diversions + Import + Groundwater Pumping) - (ET Rain +
Runoff from Rain + ETAW + Export + Surface & Groundwater Return + Evaporation)

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Thousands Acre Feet
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
1) Critical	15.2	-4.7	-3.1	26.2	1.6	-4.2	-4.3	-7.5	-23.9	-17.4	4.4	---	-17.8
2) Dry	---	---	-15.2	30.8	8.0	2.0	3.0	0.3	-21.4	-17.7	10.1	29.8	29.6
3) B Norm	---	-7.0	-16.6	29.0	6.6	1.7	4.4	1.8	-18.8	-13.3	14.6	21.2	23.5
4) A Norm	---	---	-23.4	19.2	7.9	4.2	4.8	2.3	-22.4	-13.7	16.4	27.4	22.7
5) Wet	---	-11.4	-13.1	25.4	9.5	4.3	4.7	2.5	-19.1	-11.6	18.1	17.5	27.0
Wtd Avg.	---	---	-14.3	26.7	7.3	2.1	3.1	0.5	-20.6	-14.4	13.5	---	20.5

M. Applied Water Ratio Sub-Region 3

source: = Step 5G / Step 5 (B + C+ D - H)
= ETAW/(Surfce Water Diversions + Import + Groundwater Pumping - Export)

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
1) Critical	0.41	0.88	0.70	0.38	0.52	0.63	0.68	0.66	0.83	0.93	0.87	---	0.61
2) Dry	---	---	0.71	0.47	0.54	0.62	0.67	0.64	0.83	0.89	0.79	0.47	0.62
3) B Norm	---	0.40	0.74	0.47	0.54	0.62	0.67	0.64	0.81	0.87	0.74	0.42	0.62
4) A Norm	---	---	0.74	0.50	0.56	0.62	0.67	0.65	0.81	0.87	0.62	0.22	0.63
5) Wet	---	0.47	0.79	0.52	0.57	0.63	0.68	0.65	0.82	0.87	0.43	0.02	0.64
Wtd Avg.	---	---	0.74	0.48	0.55	0.62	0.67	0.65	0.82	0.88	0.66	---	0.63

N. Groundwater Check Sub-Region 3

source: = Step 5 (J - D)
= Groundwater Return Flows - Groundwater Pumping

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Thousands Acre Feet
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
1) Critical	19.2	2.3	-28.9	-145.8	-178.7	-255.4	-313.5	-244.8	-183.6	-15.5	1.8	---	-1,343.1
2) Dry	---	---	-2.6	-44.9	-80.6	-128.3	-144.2	-102.0	-138.1	-11.5	8.2	26.7	-617.3
3) B Norm	---	34.1	-3.6	-30.0	-59.1	-95.5	-104.0	-62.9	-128.9	-10.6	10.3	25.5	-424.7
4) A Norm	---	---	2.0	-16.0	-44.7	-103.0	-112.1	-73.8	-129.4	-11.7	15.3	40.5	-433.0
5) Wet	---	27.7	2.7	-22.4	-46.0	-82.9	-95.4	-57.3	-130.1	-6.2	23.9	80.4	-305.6
Wtd Avg.	---	---	-4.0	-44.4	-73.8	-121.1	-139.1	-95.4	-138.6	-10.3	13.5	---	-554.0

Step 6. Idealized Agricultural Potential

A. Export Adjustment

0% of Export (Step 5H.) water is available for flow/timing changes in Sub-Region 1

0% of Export (Step 5H.) water is available for flow/timing changes in Sub-Region 2

0% of Export (Step 5H.) water is available for flow/timing changes in Sub-Region 3

92% of Export (Step 5H.) water is available for flow/timing changes in Sub-Region 4

0% of Export (Step 5H.) water is available for flow/timing changes in Sub-Region 6

92% of Export (Step 5H.) water is available for flow/timing changes in Sub-Region 7

0% of Export (Step 5H.) water is available for flow/timing changes in Sub-Region 8

note: Import (Step 5C) and Export (Step 5H) are in the water balance. In this Step (7D) Export water is considered water that flows through districts in Sub-Regions 4, 5, and 7. This water is available to make flow/timing changes

source: CVGSM Sub-Region 1 - 4 & 6 - 8												Thousand Acre Feet	
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
1) Critical	---	---	16.2	103.1	205.1	252.5	362.3	330.7	65.1	31.7	---	---	1,366.7
2) Dry	---	---	5.4	69.3	120.6	138.6	155.8	146.0	48.3	36.2	---	---	720.4
3) B Norm	---	---	6.3	66.4	101.3	124.2	132.8	121.8	49.1	36.3	---	---	638.4
4) A Norm	---	---	2.7	60.8	110.5	147.6	163.8	149.7	53.4	35.4	---	---	723.8
5) Wet	---	---	3.3	59.9	128.5	152.6	169.6	155.5	55.0	36.5	---	---	760.8
Wtd Avg.	---	---	6.0	69.2	128.8	156.0	183.3	168.6	53.4	35.6	---	---	800.8

B. Idealized Agricultural Potential

source: = Step 5 ((B + C + D) + Step 6A. - Step 5 (G + H))

= Surface Water Diversions + Import + Groundwater Diversions) - (ETAW + Export
+ Export Adjustment)

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
1) Critical	---	---	44.3	481.5	510.1	532.8	628.5	575.6	114.3	35.5	---	---	2,922.6
2) Dry	---	---	12.8	311.7	391.9	410.4	394.0	370.8	89.1	42.6	---	---	2,023.2
3) B Norm	---	---	13.4	296.5	370.0	383.5	368.0	340.6	94.6	43.8	---	---	1,910.3
4) A Norm	---	---	5.2	260.3	358.4	422.0	399.6	368.1	100.9	41.2	---	---	1,955.6
5) Wet	---	---	5.6	221.8	366.4	408.3	395.3	368.5	101.7	41.7	---	---	1,909.4
Wtd Avg.	---	---	13.8	296.7	390.7	421.8	420.4	390.3	98.9	41.5	---	---	2,074.2

Step 7. Achievable Agricultural Potential

A. Farm Demand

assumes very low farm loss fraction for Sub-Region 1 0.13

assumes very low farm loss fraction for Sub-Region 2 0.13

assumes very low farm loss fraction for Sub-Region 3 0.24

assumes very low farm loss fraction for Sub-Region 4 0.25

assumes very low farm loss fraction for Sub-Region 5 0.13

assumes very low farm loss fraction for Sub-Region 6 0.14

assumes very low farm loss fraction for Sub-Region 7 0.13

source: = ETAW / Farm High (1- loss fraction)

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
1) Critical	---	---	83.2	290.8	424.2	602.7	721.6	602.7	316.4	65.9	---	---	3,107.6
2) Dry	---	---	23.3	273.0	407.0	562.8	624.9	521.9	257.7	65.6	---	---	2,736.1
3) B Norm	---	---	26.1	267.5	404.8	545.2	607.2	502.5	254.9	63.9	---	---	2,672.1
4) A Norm	---	---	9.1	254.7	399.3	570.2	624.9	519.7	264.9	50.5	---	---	2,693.3
5) Wet	---	---	11.2	227.6	410.6	548.8	609.6	506.4	268.8	46.6	---	---	2,629.6
Wtd Avg.	---	---	26.2	258.0	408.9	561.1	629.3	523.5	269.1	57.5	---	---	2,733.6

B. Groundwater Pumping after System Improvements

existing farm applied water ratio for Sub-Region 1 = 0.7
 existing farm applied water ratio for Sub-Region 2 = 0.7
 existing farm applied water ratio for Sub-Region 3 = 0.7
 existing farm applied water ratio for Sub-Region 4 = 0.7
 existing farm applied water ratio for Sub-Region 6 = 0.7
 existing farm applied water ratio for Sub-Region 7 = 0.7
 existing farm applied water ratio for Sub-Region 8 = 0.7

source: = $(1 - \text{farm AW ratio} * (1/\text{farm AW ratio} - 1/(1-\text{farm very low loss fraction}))) * \text{Groundwater Pumping}$

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
1) Critical	---	---	36.8	231.2	257.1	318.7	372.2	312.6	185.8	15.1	---	---	1,729.5
2) Dry	---	---	8.1	120.7	156.8	198.7	205.8	170.4	140.2	10.8	---	---	1,011.5
3) B Norm	---	---	7.3	104.2	132.1	166.9	172.7	137.7	135.2	11.0	---	---	867.0
4) A Norm	---	---	2.5	91.7	122.8	172.0	176.4	141.9	135.0	11.5	---	---	853.8
5) Wet	---	---	3.1	85.2	117.8	155.1	160.8	129.2	135.2	7.5	---	---	793.8
Wtd Avg.	---	---	9.4	117.2	148.6	191.1	203.2	166.1	142.9	10.5	---	---	989.0

C. Farm Demand not met by Groundwater Pumping

source: = Step 7.A - Step 7.B

= Farm Demand - Groundwater Pumping

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Thousands Acre Feet
1) Critical	---	---	46.4	59.6	167.2	283.9	349.5	290.1	130.7	50.8	---	---	1,378.1
2) Dry	---	---	15.2	152.2	250.2	364.2	419.1	351.5	117.4	54.8	---	---	1,724.6
3) B Norm	---	---	18.8	163.3	272.7	378.4	434.5	364.8	119.7	52.9	---	---	1,805.1
4) A Norm	---	---	6.5	163.0	276.5	398.2	448.5	377.8	129.9	39.0	---	---	1,839.4
5) Wet	---	---	8.1	142.4	292.9	393.7	448.8	377.2	133.6	39.2	---	---	1,835.8
Wtd Avg.	---	---	16.7	140.8	260.3	370.0	426.0	357.4	126.2	47.1	---	---	1,744.6

D. Water Supplier Delivery to Meet Farm Demand

assumes district loss fraction of 0.08

source: = Step 7C / District High (1- loss fraction)

= Farm Demand not met by Groundwater Pumping/(1 - 0.08)

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Thousands Acre Feet
1) Critical	---	---	50.4	64.8	181.7	308.6	379.8	315.3	142.0	55.2	---	---	1,497.9
2) Dry	---	---	16.6	165.5	271.9	395.8	455.6	382.1	127.7	59.6	---	---	1,874.6
3) B Norm	---	---	20.4	177.5	296.4	411.3	472.3	396.6	130.1	57.5	---	---	1,962.0
4) A Norm	---	---	7.1	177.2	300.5	432.8	487.5	410.7	141.2	42.4	---	---	1,999.4
5) Wet	---	---	8.8	154.8	318.3	427.9	487.8	410.0	145.2	42.6	---	---	1,995.4
Wtd Avg.	---	---	18.2	153.0	283.0	402.2	463.1	388.5	137.1	51.2	---	---	1,896.3

E. Achievable Agricultural Potential

source = Step 5.(B + C - H) + Step 6A - Step 7D.

= Surface Water Diversions + Import - Export + Export Adjustment - Water Supplier

Delivery to Meet Farm Demand

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Thousands Acre Feet
1) Critical	---	---	16.7	384.3	370.0	334.5	389.7	376.4	11.7	14.6	---	---	1,897.9
2) Dry	---	---	5.4	222.3	259.9	227.1	190.3	201.5	6.5	21.8	---	---	1,134.8
3) B Norm	---	---	5.0	209.1	239.2	206.1	170.5	178.1	12.9	23.5	---	---	1,044.3
4) A Norm	---	---	2.4	177.4	229.4	236.8	196.4	200.0	16.0	25.1	---	---	1,083.5
5) Wet	---	---	2.0	147.1	233.8	230.0	197.0	204.6	15.6	26.8	---	---	1,056.9
Wtd Avg.	---	---	5.4	212.0	258.1	239.0	215.1	220.3	12.5	23.2	---	---	1,185.6

F. Groundwater Check after System Improvements

source = $(0.13 * 0.80 * \text{ETAW}) + (0.13 * 0.80 * \text{ETAW}) + (0.04 * (\text{Farm Demand w/o Groundwater} - \text{Water Supplier Delivery})) - \text{Groundwater Pumping}$

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
1) Critical	---	---	-30.3	-222.2	-236.9	-285.2	-338.5	-284.4	-168.5	-8.8	---	---	-1,574.7
2) Dry	---	---	-6.1	-99.9	-124.2	-151.8	-153.1	-125.5	-120.4	-4.2	---	---	-785.2
3) B Norm	---	---	-4.9	-82.0	-96.1	-117.8	-117.0	-89.9	-114.7	-4.5	---	---	-626.8
4) A Norm	---	---	-1.7	-68.8	-86.6	-121.5	-120.7	-93.7	-114.0	-7.1	---	---	-614.0
5) Wet	---	---	-2.1	-64.6	-79.9	-104.7	-104.2	-80.7	-112.9	-2.7	---	---	-551.8
Wtd Avg.	---	---	-7.2	-97.4	-114.8	-144.0	-150.8	-121.2	-122.4	-4.8	---	---	-762.7

GW Losses to Farm Fraction

A. Quantifiable Objective

source = minimum (Step 3A., Step 7E.)

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
1) Critical	---	---	---	---	48.2	---	---	---	---	---	---	---	48.2
2) Dry	---	---	---	---	44.1	---	---	---	---	---	---	---	44.1
3) B Norm	---	---	---	20.3	160.1	---	---	---	---	---	---	---	180.4
4) A Norm	---	---	---	---	---	---	---	---	---	---	---	---	0.0
5) Wet	---	---	---	---	---	---	---	---	---	---	---	---	0.0
Wtd Avg.	---	---	---	---	---	---	---	---	---	---	---	---	53.1

Detail 7, Decrease Nonproductive ET, SubRegion 1

Step 1. Quantified Targets

A. Acreage Assumed for Reduction of Nonproductive ET

source: CVGSM Sub-Region 1

Crop	Potential for Red.	ET Existing	Assumed for ET Reduction*	
			acres	percent
Pasture	No	18,600	0	0%
Alfalfa	No	1,000	0	0%
Sugar Beet	No	0	0	0%
Field	No	600	0	0%
Rice	No	0	0	0%
Truck	Yes	1,000	300	30%
Tomato	Yes	0	0	0%
Orchard	Yes	3,500	1,050	30%
Grains	No	2,500	0	0%
Vineyard	Yes	100	30	30%
Cotton	No	0	0	0%
Citrus and Olives	Yes	800	240	30%
Total		28,100	1,620	6%

*The Assumed Acreage for ET Reduction is 30% of the crops that have the Potential for ET Reduction.

B. Existing ET for Sub-Region 1

source: CVGSM

Crop	Inches												
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
Pasture	---	---	---	---	---	---	---	---	---	---	---	---	---
Alfalfa	---	---	---	---	---	---	---	---	---	---	---	---	---
Sugar Beet	---	---	---	---	---	---	---	---	---	---	---	---	---
Field	---	---	---	---	---	---	---	---	---	---	---	---	---
Rice	---	---	---	---	---	---	---	---	---	---	---	---	---
Truck	0.00	0.00	0.00	3.20	1.20	2.00	3.70	6.60	4.60	1.60	0.00	0.00	22.90
Tomato	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	---
Orchard	1.00	1.80	3.00	3.30	4.90	6.50	7.60	6.40	4.80	2.80	1.60	1.00	44.70
Grains	---	---	---	---	---	---	---	---	---	---	---	---	---
Vineyard	0.00	0.00	0.00	3.21	3.40	5.60	6.70	5.50	3.70	1.60	0.00	0.00	29.71
Cotton	---	---	---	---	---	---	---	---	---	---	---	---	---
Citrus and Olives	0.00	0.00	3.00	3.21	3.80	4.60	5.00	4.20	3.10	2.10	0.00	0.00	29.01
Total	0.65	1.17	2.39	3.27	4.02	5.37	6.48	6.09	4.49	2.45	1.04	0.65	38.06

C. ET from Rain for Sub-Region 1

source: CVGSM

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
1) Critical	0.64	1.10	2.21	0.08	1.00	0.17	0.00	0.40	0.74	1.10	1.03	0.59	9.07
2) Dry	0.70	1.10	2.28	1.06	0.62	0.24	0.00	0.09	0.86	1.06	1.12	0.68	9.79
3) B Norm	0.70	1.10	2.51	1.12	0.09	0.43	0.00	0.18	0.79	1.14	1.16	0.69	9.91
4) A Norm	0.68	1.10	2.76	1.21	0.12	0.14	0.00	0.18	0.69	1.67	1.10	0.67	10.31
5) Wet	0.70	1.10	2.64	2.45	0.04	0.22	0.00	0.11	0.40	1.94	1.30	0.70	11.60
Wtd Avg.	0.69	1.10	2.49	1.39	0.32	0.25	0.00	0.17	0.67	1.43	1.17	0.68	10.34

D. Existing ETAW for Sub-Region 1

	source: calculated = Step 1B.(Average Total) - Step 1C., (set to 0 if Step 1B. - Step 1C. <0)												Inches
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
1) Critical	0.00	0.07	0.18	3.19	3.02	5.20	6.48	5.69	3.75	1.35	0.00	0.06	28.99
2) Dry	0.00	0.07	0.11	2.21	3.41	5.13	6.48	6.01	3.63	1.40	0.00	0.00	28.43
3) B Norm	0.00	0.07	0.00	2.15	3.93	4.94	6.48	5.92	3.70	1.32	0.00	0.00	28.49
4) A Norm	0.00	0.07	0.00	2.06	3.90	5.22	6.48	5.92	3.80	0.79	0.00	0.00	28.23
5) Wet	0.00	0.07	0.00	0.82	3.98	5.14	6.48	5.98	4.10	0.51	0.00	0.00	27.08
Wtd Avg.	0.00	0.07	0.05	1.88	3.70	5.12	6.48	5.93	3.82	1.03	0.00	0.01	28.08

E. Target ETAW for Sub-Region 1

	source: calculated = Step 1D. * 90%												Inches
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
1) Critical	0.00	0.06	0.16	2.87	2.72	4.68	5.83	5.13	3.37	1.22	0.00	0.05	26.09
2) Dry	0.00	0.06	0.10	1.99	3.06	4.62	5.83	5.41	3.27	1.26	0.00	0.00	25.59
3) B Norm	0.00	0.06	0.00	1.93	3.54	4.45	5.83	5.32	3.33	1.18	0.00	0.00	25.64
4) A Norm	0.00	0.06	0.00	1.85	3.51	4.70	5.83	5.33	3.42	0.71	0.00	0.00	25.40
5) Wet	0.00	0.06	0.00	0.74	3.58	4.63	5.83	5.39	3.69	0.46	0.00	0.00	24.37
Wtd Avg.	0.00	0.06	0.04	1.69	3.33	4.61	5.83	5.34	3.44	0.92	0.00	0.01	25.27

Step 2. Reference Condition

For ET Reduction the Reference Condition is the existing Crop ET, Step 1B.

Step 3. Quantified Targeted Benefit Change

A. Quantified Targeted Benefit Change for Sub-Region 1

	source: calculated = Step 1D - Step 1E												Inches
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
1) Critical	---	---	---	---	---	---	---	---	---	---	---	---	0.00
2) Dry	---	---	---	---	---	---	---	---	---	---	---	---	0.00
3) B Norm	---	---	---	---	---	---	---	---	---	---	---	---	0.00
4) A Norm	---	---	---	---	---	---	---	---	---	---	---	---	0.00
5) Wet	---	---	---	---	---	---	---	---	---	---	---	---	0.00
Wtd Avg.	---	---	---	---	---	---	---	---	---	---	---	---	0.00

B. Quantified Targeted Benefit Change for Sub-Region 1

	source: calculated = Step 1D - Step 1E												Thousands Acre Feet
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
1) Critical	---	---	---	---	---	---	---	---	---	---	---	---	0.0
2) Dry	---	---	---	---	---	---	---	---	---	---	---	---	0.0
3) B Norm	---	---	---	---	---	---	---	---	---	---	---	---	0.0
4) A Norm	---	---	---	---	---	---	---	---	---	---	---	---	0.0
5) Wet	---	---	---	---	---	---	---	---	---	---	---	---	0.0
Wtd Avg.	---	---	---	---	---	---	---	---	---	---	---	---	0.0

Step 4. Area Affected by Targeted Benefit

Area affected are the 1,620 acres identified in Step 1A.

Step 5. Water Flow Path Elements

The flow path elements used in this analysis are given in Step 1.

Step 6. Idealized Agricultural Potential

Additional ET research is required to determine this component.

Step 7. Achievable Agricultural Potential

The farm Available Agricultural Potential is the same as Step 3B.

Step 8. Quantifiable Objective

- A. For ET Reduction the Quantifiable Objective is Step 3B